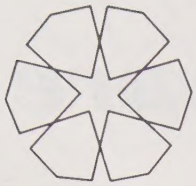

The Journal of Systems and Software

Volume 5, 1985

The Journal of Systems and Software

Aims and Scope

The *Journal of Systems and Software* publishes papers covering all aspects of programming methodology, software engineering, and related hardware-software-systems issues. Topics of interest include, but are not limited to, software tools, programming environments, techniques for developing, validating, and maintaining software systems, prototyping issues, high level specification techniques, procedural and functional programming techniques, data flow concepts, multiprocessing, real-time, distributed, concurrent, and telecommunications systems, software metrics, reliability models for software, performance issues, and management concerns. The journal publishes research papers, state-of-the-art surveys, and reports of practical experience. Occasionally, special issues are devoted to topics of particular interest; proposals for such issues are invited.

Editorial Staff

Editor-in-Chief

Robert L. Glass
Seattle University

Associate Editors

William Riddle
Software Design and Analysis
1670 Bear Mountain
Boulder, CO 80303

Kouichi Kishida
Software Research Associates, Inc.
Technical Director
1-1-1, Hirakawa-Cho, Chiyoda-Ku
Tokyo 102, Japan

J.C. Rault
Agence de l'Informatique
Tour Fiat-Cedex 16
92084 Paris-La Defense
France

Victor Basili
Computer Science Department
University of Maryland
College Park, MD 20740

Michael Hennell
Department of Computer and Statistics Sciences
Victoria Building Brownlow Hill
The University of Liverpool
P.O. Box 147
Liverpool L69 3BX, England

Advisory Editors

Bill Curtis
ITT-Programming

Meir Lehman
Imperial College

Anthony Wasserman
University of California
at San Francisco

Peter Freeman
University of California at Irvine

Jock Rader
Hughes Aircraft Company

The Journal of Systems and Software

Volume 5, Number 1, February 1985

Contents

Editor's Introduction 1

Human Factors in Software Engineering: A Review of the Literature 3
K. Ronald Laughery, Jr. and Kenneth R. Laughery, Sr.

Applications of Symbolic Evaluation 15
Lori A. Clarke and Debra J. Richardson

An Analysis of Static Metrics and Faults in C Software 37
S. G. Crawford, A. A. McIntosh, and D. Pregibon

Managing Programming Productivity 49
D. R. Jeffery and M. J. Lawrence

A Methodology to Model the Information Structure of an Organization 59
Ralph R. Bravoco and Surya B. Yadav

Analysis of Parallelism in Nested DO Loops 73
P. W. Foulk and S. M. Nassar

Stepwise Refinement Revisited 81
Vaclav Rajlich

Biographies 89

The Journal of Systems and Software

Volume 5, Number 2, May 1985

Contents

The GANDALF Project 91
David Notkin

The Evolution of the GANDALF System 107
Robert J. Ellison and Barbara J. Staudt

Incremental Parsing without a Parser 121
Gail E. Kaiser and Elaine Kant

Automatic Deletion of Obsolete Information 145
A. N. Habermann

Automatic Generation of Execution Tools in a GANDALF Environment 155
Vincenzo Ambriola and Carlo Montangero

Annotated Bibliography of GANDALF Literature 173

Biographies 177

The Journal of Systems and Software

Volume 5, Number 3, August 1985

Contents

CORRECT: A Simulated Text Editor 179
Alan Reed

Inference from Models of Software Systems 185
Allan M. Stavely

An Optimistic Implementation of the Stack-Heap 193
Jean R. Stephenson Blair, Phil Kearns, and Mary Lou Soffa

FLOW: A Software Development Environment Using Diagrams 203
Jeffrey W. M. Dooley and Stephen R. Schach

Availability Analysis for the Design of Distributed Processing Networks 221
M. Tsuchiya

Complexity Measures for Assembly Language Programs 229
J. David Blaine and Richard A. Kemmerer

Biographies 247

The Journal of Systems and Software

Volume 5, Number 4, November 1985

Contents

A Model for the Protocol Design of Back-End Storage Networks 249
M. Zaki and S. Koriem

Software Project Development Cost Estimation 267
Barbara A. Kitchenham and N. R. Taylor

The Impact of Programming Methodology on Program Complexity 279
D. L. Carver and D. B. Simmons

STRAPS—A Software TRAnsPort System for Low-Level Software 291
P. Fairfield

Biographies 303

Author Index to Volume 5 305

Subject Index to Volume 5 307

Volume Contents